

What is claimed is:

1. A wide band normal incident telescope, comprising:  
a reflecting mirror involving a surface part wherein  
different types of multilayer films have been formed, respectively,  
in every regions of predetermined shapes, and reflecting light  
rays, which were input, by said surface part; and

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a detector to which the light rays reflected by said surface  
part are input, and which detects spectrally the light rays thus  
input.

2. A wide band normal incident telescope as claimed in claim  
1 wherein:

the different types of multilayer films on said surface part  
are the ones reflecting respectively light rays having  
predetermined energies in a region extending from soft X-ray to  
extreme ultraviolet ray as well as having high reflection factors  
due to total reflection over a region extending from vacuum  
ultraviolet ray to visible light.

3. A wide band normal incident telescope as claimed in any  
one of claims 1 and 2 wherein:

said surface part involves a circular shape and which has  
been divided into a plurality of sector-shaped areas each having  
a predetermined central angle containing a central portion of  
said circular shape as its apex.

4. A wide band normal incident telescope as claimed in claim  
3 wherein:

said surface part is composed of a plurality of sections  
each involving a predetermined number of said sector-shaped areas  
in which types of multilayer films formed therein and orders in

alignment of said multilayer films coincide with each other in said plural sections, respectively.

5. A wide band normal incident telescope, comprising:  
a reflecting mirror involving a surface part wherein multilayer films have been formed, and reflecting light rays, which were input, by said surface part,

each periodic length being changed continuously in the multilayer film along the depth direction of said multilayer film to reflect, respectively, light rays each having a predetermined energy in a region extending from soft X-ray to extreme ultraviolet ray,

said multilayer films having high reflection factors due to total reflection over a region extending from vacuum ultraviolet ray to visible light; and

a detector to which the light rays reflected by said surface part of said reflecting mirror are input, and which detects spectrally the light rays thus input.

6. A wide band normal incident telescope, comprising:  
a first reflecting mirror involving a first surface part wherein multilayer films have been formed, and reflecting light rays, which were input, by said first surface part,

each periodic length being changed continuously in the multilayer film along the depth direction of said multilayer film to reflect, respectively, light rays each having a predetermined energy in a region extending from soft X-ray to extreme ultraviolet ray,

said multilayer films having high reflection factors due to total reflection over a region extending from vacuum

ultraviolet ray to visible light;

a second reflecting mirror involving a second surface part wherein multilayer films have been formed, and reflecting light rays, which were reflected by said first surface part of said first reflecting mirror, by said second surface,

each periodic length being changed continuously in the multilayer film along the depth direction of said multilayer film in response to said first surface of said first reflecting mirror to reflect, respectively, light rays each having a predetermined energy in a region extending from soft X-ray to extreme ultraviolet ray,

said multilayer films having high reflection factors due to total reflection over a region extending from vacuum ultraviolet ray to visible light; and

a detector to which the light rays reflected by said second surface part of said second reflecting mirror are input, and which detects spectrally the light rays thus input.

7. A wide band normal incident telescope as claimed in any one of claims 1, 2, 5 and 6 wherein:

said detector is a superconducting tunnel junction device.

8. A wide band normal incident telescope as claimed in claim 3 wherein:

said detector is a superconducting tunnel junction device.

9. A wide band normal incident telescope as claimed in claim 4 wherein:

said detector is a superconducting tunnel junction device.

10. A wide band normal incident telescope, comprising:  
a reflecting mirror having a surface part involving four

sections forming a circular shape, each section being prepared by disposing clockwise sequentially nine sector-shaped areas, each having a central angle of ten degrees, of a first sector-shaped area in which a multilayer film reflecting light rays of 100 eV energy has been formed, a second sector-shaped area in which a multilayer film reflecting light rays of 90 eV energy has been formed, a third sector-shaped area in which a multilayer film reflecting light rays of 80 eV energy has been formed, a fourth sector-shaped area in which a multilayer film reflecting light rays of 70 eV energy has been formed, a fifth sector-shaped area in which a multilayer film reflecting light rays of 60 eV energy has been formed, a sixth sector-shaped area in which a multilayer film reflecting light rays of 50 eV energy has been formed, a seventh sector-shaped area in which a multilayer film reflecting light rays of 40 eV energy has been formed, a eighth sector-shaped area in which a multilayer film reflecting light rays of 30 eV energy has been formed, and a ninth sector-shaped area in which a multilayer film reflecting light rays of 20 eV energy has been formed, and reflecting light rays, which were input, by said surface part; and

a superconducting tunnel junction device to which the light rays reflected by said surface part of said reflecting mirror are input, and which detects spectrally the light rays thus input.